MEMOIRS
FOR THE
INGENIOUS.
CONTAINING
Several Curious Obſervations in *Philoſophy*, *Mathematicks*, *Phyſick*, *Hiſtory*, *Philology*, and other Arts and Sciences.

IN
Miſcellaneous Letters.

By *J. DE LA CROSE*, Eccl. Angl. Presb.

APRIL, 1693.

To be continued Monthly.

VOL. I.

Paterna bona tempus interdum facit
Aliena, ſervans interim corpora:
Unum autem vitæ præſidium in artibus ſitum eſt.
Hipparchus.

LONDON, Printed for H. Rhodes near *Bride-lane* in *Fleet ſtreet*.
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Memoirs for the Ingenious.

APRIL, 1693.

LETTER XIV.

To the Author of theſe Memoirs.

ARGUMENT.

Occaſion of this Letter. The Author's opinion, That Springs and Rivers owe their origin to the preſſure of the Atmoſphere upon the waters of the Sea. That the Atmoſphere does ſtrongly gravitate upon the Terraqueous Globe, prov'd by ſeveral Experiments. Attraction or Sucking an abſurd Notion. How ſalt Water comes to be made freſh. That Water freed from the preſſure of the air will of it ſelf riſe perpendicularly, and pierce through the Pores of Sand and Gravel, prov'd by reaſons and experiments. Whether it be true that Water will riſe no higher than its head or level? How being got up almoſt to the top of the Hills, it gets out again into the open air? Of a Hog that found out a Salt Spring.

Reverend Sir,

YOu give us a good account in your firſt Letter of the two moſt remarkable and generally received opinions concerning the origin of Springs and Rivers. I have formerly ſpent ſome of my leiſure hours in ſuch delightful ſpeculations, and particularly on that ſubject; but could never yet meet with any ſolution that

was not attended with many improbabilities, and moſt of them with ſeemingly invincible difficulties. Certainly the ſubject is of that Dignity in its own nature, and of that importance to the conveniences of humane life, that it well deſerves our ſerious ſtudy. I could never approve of poſitive aſſertions in ſuch remote and difficult enquiries, and am very ſenſible how little reaſon I have to pretend to it; but yet I think I ſhould be injurious to truth, if when it ſeems to appear with convincing evidence, I ſhould yield no greater deference to its dictates, than to meer conjecture and ſuppoſition. Sir, In the opportunity of your ingenious converſation I communicated to you in what manner I apprehended this great work of nature to be effected; and though you did not preſently acquieſce with me, yet upon further debate you were pleaſed to judge ſo favourably, as to deſire me to publiſh my notion of it, eſpecially for that it is not meerly argumentative, but grounded upon familiar and obvious experiments. I comply with your requeſt the rather, for that I have obſerved we often happen at laſt to meet with truth, by enquiring for it where it was not.

My apprehenſion then is, That the Sea is the material cauſe of Springs, and that the gravitation or preſſure of the Atmoſphere upon the vaſt ſurface and body of the Seas and Waters round the terreſtrial Globe, is the efficient cauſe: or to uſe more familiar terms, ſince theſe Letters are deſigned for the generality of Readers, I conceive the Seas round our Globe are every where ſo forcibly compreſt, and as it were ſqueezed together by the weight and preſſure of the Air upon them, that in what part ſoever they can be freed, or but ſomething eaſed of this weight and force which keeps them down, the Water will of itſelf riſe to a very great height; and conſequently that the Sea insinuating and working itſelf into the vaſt cavities of the Earth, and being there by the cloſe texture or cruſt of the ſurface, ſheltred and defended in a great meaſure from the preſſure of incumbent Air, it did at firſt by degrees creep up, work its way, and raiſe itſelf even to the tops of the high hills, through the veins and ſpaces of the earth, and alſo through the gravel, ſand, and looſer earth, which it met with in its way, though there were there no ſenſible veins or clefts to favour its paſſage. That being there encreaſed to great quantities, it did ſpread and dilate itſelf through the body, and to the ſides of the hills, and having acquired great ſtrength by its bulk and innate gravity, it often found out, and ſometimes made declivous paſſages down through the ſurface into the open air again; and ſo many Springs meeting together, formed ſmall Streams, and many Streams joyning made

great

great Rivers, which deſcending in their chanels through the lower Earth, return again into the Sea. And by this communication and perpetual motion, neither the Rivers come to be emptied, nor the Sea to be over filled.

I have been ſomething the more prolix in this deſcription, as deſiring to be fully underſtood by every one; and hope on the other hand, I may obtain of the Reader this moderate requeſt, that he would ſuſpend his cenſure till he is come to the end of this ſhort Diſſertation; ſince neither the limits of a Letter, nor, as I hope, the perſpicuity of the ſubject will admit of being tedious. To proceed with ſome method herein I think it pertinent to prove, 1. That the atmoſphere or air doth ſtrongly gravitate or preſs upon our Globe of earth and water. 2. That whenever the ſea or water is freed from this preſſure of the air, it will of itſelf immediately riſe perpendicularly in tubes or pipes, and even pierce through porous bodies, and thro gravel, ſand, and the looſer earth; in the evincing whereof I ſhall chuſe to make uſe of the more familiar and obvious experiments, as carrying with them a more plain and ſatisfactory evidence and alſo for that they ſuit Philoſophers of our ſtation better than thoſe more remote and curious ones; which as they are farther fetched, ſo they are dearer bought.

As to the firſt, take a piece of board plained even and made very ſmooth, lay it horizontally upon a ſmooth and even table, ſo that the board and table may exactly touch, eſpecially in the extremities of the board, that the air may not come between. I ſay you ſhall perceive the air to preſs ſo hard upon the board, and keep it down ſo forcibly, that you will find it difficult to pull it perpendicularly up from the table: And this will appear yet plainer, if inſtead of a piece of board, which, tho never ſo carefully plained and ſmoothed, will ſtill be rugged and porous, you take two pieces of fine glaſs evenly ground and well poliſhed, and place the two poliſhed ſides together horizontally, the air will preſs ſo much upon the uppermoſt glaſs that you can hardly take it up perpendicularly from the lower without danger of breaking, and you will be forced to ſlide it off, that you may let in the air underneath to your aſſiſtance. Now there is to be no moiſture nor glutinous ſubſtance between the board and table, or the glaſſes; what then can be imagined ſo to hinder the lifting up the uppermoſt, but the weight of the air upon it? Indeed if you raiſe one corner, and thereby let in the air between, as I before intimated, that, by its elaſtic or ſpringing nature, being itſelf very much compreſſed, will help up the board or glaſs: ſo that to try the experiment truly, care muſt be taken to lift

up the whole peice perpendicularly. And what elſe keeps up the water or Quickſilver in the pipe of the Weather-glaſs, but the weight and preſſure of the air upon that part of the water or Quick-ſilver which ſtagnates in the box wherein the mouth of the pipe is dipped? And may we not perceive the air to gravitate even upon our own heads and body? for with all the ſtrength we have we can leap up but a very ſmall height into the air, but can leap forward ſix times the diſtance, and with more eaſe: a pail full of water immerſed in the water is eaſily drawn up till it come to the top, and meets the air; the preſſure of the air being chiefly perpendicular.

But leſt I ſhould ſeem to trifle in a matter ſo generally known in this age, I ſhall not multiply inſtances but proceed to the proof of the ſecond aſſertion that the water, when freed from the preſſure of the air upon it, will of it ſelf riſe perpendicularly, and even make its way thro gravel, ſand, and the lighter earth, the truth of which will readily appear, if we do but conſider our uſual and familiar experiments with the leaſt attention; for, do but take notice how water comes up into a Syringe; we dip the mouth of the Syringe into the water, whereby that part of the water which is directly under the mouth is defended from the preſſure of the air, except only of that little contained in the ſmall pipe of the Syringe: then we draw up the *embolum* or handle whereby that little air is dilated, and room made for the water to riſe, which thereupon immediately ſprings up and fills the body of the Syringe, eſcaping as it were from its Priſon, whereto the preſſure of the air had confin'd it.

It may be ſome Perſons who do not trouble themſelves much to examin the true meaning of words, will be apt to ſay, the water doth not riſe of it ſelf, but is ſucked up by the pulling out the handle. For anſwer I ſay, there is no ſuch operation in nature, as ſucking in the ſenſe here uſed, and the word itſelf is not underſtood, and only a refuge for ignorance, ſuch as occult qualities, plaſtic virtues, antipathies and the like; for what muſt this ſuction be, but drawing? and how can any thing be drawn, unleſs it be laid hold of mediately, or immediately? and what hold can be laid on water, or what ſucking virtue, if any ſuch there were, is the handle indued with?

But leſt this ſucking notion ſhould not eaſily out of the head of ſome, perhaps out of reſpect to the kindneſs they apprehend, it formerly did them, I ſhall paſs to another very obvious experiment, not at all liable to this fancy. Fill a Baſon half full of water, lay a Linnen, or rather Woollen rag, or ſlip of Flannel, ſo that one end may dip in the water, and the other end hang over the brims of the Baſon; the experiment will be the ſooner performed, if you firſt

wet

wet the cloth and wring it, you ſhall in ſhort time perceive the water in the baſon to creep up through the pores, or vacant ſpaces of the cloath, and to get over the brims of the baſon, as it were the top of a hill, and deſcend through the other part of the cloath which hangs over: and if that end hang ſomething lower than the end which is in the water, all the water in the baſon, ſo far as the cloath is dipped into it, will riſe over the brims, and run out through the cloath upon the floor. And the like would happen to the Sea, if the Rivers did not run into it to fill it again.

And even if you dip the one end of a Spunge, or of a piece of new Bread into the water, the water will inſenſibly riſe up through the pores; or take a glaſs tube or pipe with only one orifice, ſuch as is uſed in Barometers, you cannot eaſily get out the air incloſed in it; but if you heat it, part of the air will be thereby expelled, and the reſt ſo dilated or rarefied, that a ſmall portion will ſuffice to fill the cavity of the pipe. Then dip the orifice in water, and as the pipe cools, and thereby the dilated air comes to be again condenſed, and to take up leſs room, the water will mount up in proportion to the degree of heat and length of the pipe.

Or put a piece of flaming paper into a drinking glaſs, and invert the glaſs with the lighted paper therein upon ſuch a quantity of water in a baſon as the glaſs will hold; the water will preſently riſe up into the glaſs, the lighted paper having expelled and extreamly rarified the air that was in the glaſs, and thereby freed the aſcending water from its preſſure.

We know that Seamen in long Voyages, when they are in want of freſh water, do often dig holes in the ſand near the Sea, and there uſually find water tolerably freſh. They have alſo an ingenious way to facilitate it, they take two Hogſheads, and bore the ſides full of holes with a Gimlet, ſetting them one upon the other in the hole they have digged in the Sand, they will find in a nights time, or leſs, a good quantity of water in the Hogſheads, which is percolated or ſtrained through the ſand and holes into the Veſſels, and the further they remove from the Sea, the freſher they find the water, but it may be the leſſer quantity.

And here you may take notice how the ſalt water comes to be made freſh, (*viz.*) by being ſtrained thro the fine Sand and Gravel, whereby the groſs ſaline particles are kept back; and much more when inſtead of a ſmall diſtance from the Sea, the water is forced thro ſo long a paſſage, and ſo many different ſorts of earth, even to the tops of high Hills, far remote from the Seas. For beſides the percolation, the groſs particles of Salt are heavy, and not apt to

aſcend

aſcend with the purer and lighter water: neither indeed is it judged that the Sea is ſo ſalt at bottom, for the continual agitation of the ſurface catching as it were, and wrapping up the heat and beams of the Sun together with the nitrous air, a great part of its ſaltneſs is thereby generated towards the top. And we have very credible relations that in many Seas freſh water is drawn up from the bottom, the art whereof conſiſts chiefly in the Engines being made to open and ſhut in due time.

(a) Hiſt. of Learning, p. 58.

Add to this the (a) experiments which aſſure us, That the Sea is colder at the bottom, and therefore leſs ſalt, and appears ſo even to the taſte; which laſt obſervation I deſire may be taken notice of, in anſwer to the *Carteſians* opinion, who hold that the central fire in the earth, left there, I ſuppoſe, ever ſince our Globe was a Sun, doth by its heat drive up exhalations out of the Sea thro the Hills, ſufficient for a continual ſupply to the Rivers. But it ſeems it is in ſuch haſte, that it doth not ſtay to warm the bottom of the Sea in its way. Now it is generally held, that there are above a Thouſand great Rivers which continually empty ſuch vaſt quantities of water into the Sea, that in 24 hours time it ſo receives the quantity of half its whole bulk; and what caverns will ſuffice to contain ſuch quantities of Exhalations?

But I fear I deſerve to be pounded for ſtraying ſo far. I ſhall only add one experiment, to come to a cloſer proof of this aſſertion. Fill a long glaſs pipe of what diameter you pleaſe, with fine gravel or ſand, tie a piece of thin Lawn or hair Sieve about one end, ſo as to keep the ſand from falling out, dip that end into the water perpendicularly, if you pleaſe, you will find the water will work its way up through the ſand, and in time aſcend even to the top of the pipe: now pray can any aſſertion be proved more literally true? 'Tis but ſuppoſing this tube ſo filled with ſand to be a mountain, as many ſuch pipes full of ſand will make one; and why ſhould not the water be admited as well to riſe through the ſand, gravel, veins, ſpaces and cleſts of a hill, as we ſee it does thro the gravel, ſand and vacuities in a glaſs tube? The conveniences for its aſcent are much more in hills, than in the pipe; and the preſſure of the Atmoſphere far greater on the globous ſurface of the ſeas, than upon the level ſurface of the water in the baſon, as may eaſily be demonſtrated; for the ſides of the baſon keep off that ſort of preſſure, which the riſing globe of the ſea is on all ſides expoſed to: and this preſſure on the globe being in direct lines towards the center, and conſequently joyning cloſer at ſome diſtance below the ſuperficies of the ſea, they cauſe a far greater preſſure towards the bottom of the water,

ter; not unlike the Sun beams, which paſſing through a convex glaſs, and uniting towards the *focus*, they become ſo ſtrong, and act with ſuch vehemence as to ſet things on fire, which before they could hardly warm. Add to this the innate gravitation of the huge bulk of the Sea it ſelf, the extraordinary force of winds and tempeſts upon it, the great weight and preſſure of the flowing tides continually rowling down, and the reflexion of the Sun beams from the Moon; the rapid and in effect contrary motion of the earth with which the water cannot keep pace; the perpetual agitation and force which the Sea lies under, nothing of which is to be found in the water contained in the Baſon. So that whoever ſhall go about to compute the degrees of the preſſure upon the Sea in its natural ſituation, and to calculate the effects thereof by what he may ſee in the extravaſated water in our little Baſon, muſt needs be much out in his reckoning; for moſt certainly the greater the preſſure is, the more forcible and higher the water will riſe, when freed from it; not unlike to the water brought in great pipes or trees, which the higher the baſon or reſerver is, from whence the pipes come, the higher the water will riſe in them.

As for that miſunderſtood rule, that water will riſe no higher than its head or level, that is to be underſtood, when the water lies open to the air at both ends, which is no wonder, for their the air hath an equal power upon both ends, and doth keep them both down alike. But what we contend for happens only when one end is freed from the preſſure of the air; neither indeed will it ſeem matter of great admiration, if this principle be well conſidered. For if two Scales be kept even with a pound weight in each of them, and you take half a pound out of one Scale, muſt not that riſe? And if you take out the whole pound, muſt it not riſe with the greater force? And now that there is an æquilibrium in water and liquid bodies is ſufficiently known, the doctrine whereof is, it may be, one of the moſt curious and uſeful parts of the Corpuſcularian Philoſophy, and which depends upon, and is ultimately reſolvable into our principles. And I doubt not but theſe obſervations will be anſwers to ſome objections which may ſeem to be of moment.

I could add ſeveral other arguments, as obſervations on the motion of Liquors in Syphons, and divers other experiments: but none, I confeſs, that, in my apprehenſion, gives a plainer demonſtration of the matter in queſtion than this laſt. So that I ſhall proceed a little farther to explain another part of this Hypotheſis, how theſe waters being thus got up almoſt to the top of the Hills, do get out into the open air? I conceive this may happen ſeveral ways. 1. The frequent rains and melted ſnow may ſoften and penetrate the ſurface,

and

and looſen the earth; and ſo open veins and paſſages for the incloſed water to get out; and likewiſe long droughts cauſing the ground to chap and open very deep, may produce the ſame effect. 2. Trees and woods with their roots pierce into, and open the earth. 3. Earthquakes often ſhake and rend hills in ſuch manner, that, as very credible Authors relate, Rivers have guſhed out at the vaſt overtures, and continued running. 4. Mens labour and even Beaſts may ſometimes occaſion it. You give us, Sir, a very ſurprizing relation of your Country-man who can find out Springs by his divining wand; and I have read a divertive ſtory to this purpoſe, That a Country-mans Hog near *Lunenburg* having turned up the ground about him, and continuing ſtill to root for ſomething he ſmelt there, a ſalt Spring ſuddenly broke out in the place, and quickly filled the hole he had made: The Hog, as is uſual with thoſe creatures, laid himſelf down in it, but the Spring ſtill increaſing about him, he did not like his bed, and roſe out well ſoaked in the brine: The Sun ſhining hot quickly dryed a good part of it, ſo that the white particles of Salt hung thick and ſhining upon the Hogs briſtles and hair, and were very diſcernable; the Country-man happening to ſee his Hog in that condition, and quickly perceiving that it was good Salt that hung upon him, he found out the hole and the Spring, and afterwards digging for the conveniency of that, ſeveral other ſalt Springs were found out near thereto. By that Salt-trade the City became populous and rich; and in memory of the accident the Hog was ſalted, and cut into quarters, and hung up in the Town-hall, where it yet remains ſo dryed away that it ſeems to be little more than the skin.

And thus having conducted our Sea-water through the hills into the channels of great rivers, we ſhall leave it to run ſecurely, I hope, into the Sea again. I did intend to have added ſome reaſons why this opinion ſeemed ſo plauſible to me, and what I judged moſt unaccountable in other hypotheſes, and to have ſtated and anſwered ſome objections which I apprehend may be raiſed; tho I can think of none which I judge may not be very ſatisfactorily anſwered, and againſt which I have not herein made ſome conſiderable proviſion. But I fear the preſſure of the atmoſphere has alſo raiſed my Letter beyond its due limits. I ſhall conclude with this requeſt, That if you think fit to publiſh this almoſt extemporary diſcourſe, you will pleaſe to have an Eye to the *Errata*'s of the Preſs, wherein your Printer is ſomething remiſs; and with your accuſtomed candour excuſe thoſe that may have been committed by your affectionate Servant,

April 9. 93. *C. J.*

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LETTER XV.

To my very good Friend Mr. J. C.

ARGUMENT.

A Confirmation of the foregoing Hypotheſis, concerning the Origin of Springs. An account of Gravity: That it is natural to Bodies, and a plain conſequence of their impenetrability. That all Bodies lie heavy upon each other. That this heavineſs imports a rectilinear perpendicular Motion. Why projected Bodies do not fall into the Sun, if it be the Center of the World? Why they return to the Earth, and why their Motion is accelerated in a Geometrical proportion in their Deſcent? Whether theſe Phænomena may be explained by ſuppoſing an attractive Power in the Center of the Sun and Planets. That the Air and Water gravitate on their own Elements, Why we do not feel the preſſure of the Air, nor Divers that of the Water?

Honoured Sir,

I Look upon your Letter of the 9th of this month, as one of the greateſt favors you have beſtowed upon me: for many ingenious men who might enrich theſe Memoirs, and the Commonwealth of Learning with very fine notions and uſeful diſcoveries, but excuſe themſelves with pretended diſtractions and buſineſs, may learn by your example, That there are none ſo great, but a generous mind may go through them, and find ſtill ſome leiſure hours to ſpend in Philoſophical ſpeculations.

I am wholly perſwaded of the truth of your Hypotheſis, That the riſing of the water above its head or level is hindred by the preſſure of the Atmoſphere; and that whenſoever it is freed from that conſtraint, as it happens in ſubterraneous Chanels, it muſt neceſſarily

riſe above the ground, which is heavier than it, eſpecially after it has been cleanſed from its ſalt and other groſs and terreſtrial particles, which it leaves among the ſands. Beſides that we may conceive theſe Chanels very narrow, ſo that the filtrated water cannot ſtagnate there, being ſtill preſſed forward by other water coming from the Sea.

I do not well ſee what can be objected againſt ſo plain an account, confirm'd by ſo many and eaſy experiments, unleſs it be that common prejudice, that bodies do not gravitate in their proper places, as air in the Atmoſphere, water in the Sea and Rivers, ſtones upon the ground, *&c.* Whence they will be apt to infer, that it's not the preſſure of the Atmoſphere, that keeps water from riſing; but that it is a natural property of that Element, that it cannot riſe above its head or level, as appears, add they, in the inſtance of Syphons.

I leave you to reſolve that inſtance, as well as the other objections, that may be made againſt your Hypotheſis, which I do not doubt but you will ſuccesfully perform. I take only for my preſent task to examin, Whether bodies do not gravitate in their proper places? which tho it be an opinion generally receiv'd, and entertain'd even by the great *Deſcartes* (*a*), yet I hope I ſhall demonſtrate it to be a meer prejudice, and a falſe notion.

(*a*) *Prin. p. 4. n. 26.*

This will ingage me into one of the moſt difficult diſcuſſions in Phyſics, *viz.* to inquire into the nature of gravity; which ſo many Philoſophers have hitherto attempted in vain, for I never met with any judicious and thinking Perſon, that was wholly ſatisfied with any of the Hypotheſes either of the ancients or of the moderns; ſo that one of the greateſt Mathematicians and Philoſophers of this age told me once, That there were bodies which had a propenſity to unite together; and others on the contrary to fly from one another: and this was all we might hope to know concerning their nature.

It would then be loſs of time to propoſe and confute all thoſe opinions that are different from mine; moſt of their Abettors being ſenſible themſelves, That their conjectures have no certain foundation. And therefore I ſhall endeavour to lay a ſurer ground, and to take no borrow'd notion for the main prop of my Hypotheſis, but only natural Idea's and daily experiments.

1. *Matter is a compound of ſeveral particles ſubſiſting independently of each other:* For matter can be, and is oft divided into ſuch particles; but if matter was eſſentially one, it could not be divided, and therefore matter is a compound, *&c.*

2. *The firſt bodies or particles that enter into the compoſition of matter are of an unimaginable ſmallneſs.* This appears by the incredible extenſion,

tenſion of Gold, the effluviums of bodies, the leaſt corpuſcles that make up the blood, Nerves, and other Organs of little Animals, *&c.*

3. *Theſe particles are of different bulk and figure, or at leaſt become ſo by their various complications.*

4. *Theſe particles are impenetrable, ſolid and unactive.* Matter is impenetrable and unactive, but the whole is of the ſame nature with its parts: and therefore the firſt parts, or leaſt particles of matter are impenetrable and unactive. As to ſolidity, it has been proved elſewhere *(a)* that the leaſt particles of matter were indued with it: and it cannot be deny'd, unleſs we ſhould admit a real infinity of parts actually divided from one another, in the leaſt corpuſcle imaginable.

(a) p: 63, 64.

5. *Whatſoever is bulky, impenetrable and unactive, is heavy.* Experience teaches us, That the weight of bodies increaſes in proportion to their bulk and impenetrability. A Pound of Gold is bigger and heavier than an Ounce; and a certain quantity or maſs of that metal is leſs porous, and alſo heavier than an equal quantity of Tin, that has more pores in it. As to unactivity, Tho the figure and inward conſtitution of compound bodies may render them more or leſs proper for motion; yet we ſee that, all other things being equal, bodies are the more unactive and ponderous, as they are more bulky and impenetrable, or have more matter and fewer pores in them.

6. *A heavy body cannot remain in the place where it is, unleſs it be underpropt by other bodies.* For if it could, then it would have ſome force to keep up itſelf, and therefore would not be unactive. And as a man muſt have force and life to ſtand up right, and much more to reſiſt the Tide, or the Current of a River; ſo bodies preſſing down each other, if one of them could withſtand that preſſure, without being underpropt by others, it would have more force in itſelf alone, than that huge part of the Syſtem of the World that ſhould lie upon it.

Then, you will ſay, it is no natural heavineſs that carries bodies down, but the gravitation of others upon them. I anſwer, That this gravitation is a partial, but not a total cauſe of their fall. For if there be no natural gravity, what is it that preſſes down to the center, the bodies that lie round about the utmoſt bounds of this world? It's undoubtedly the ſame cauſe that carries down Quick-ſilver, in the *Torricellian Tube*, where there is no ſenſible air to preſs upon it, *viz.* The natural unactivity of matter, that makes it the more unable to keep up itſelf, as it is more compact and bulky. And therefore

7. *All bodies lye heavy one upon another*; for a body having no force to keep up itſelf, by the fifth and ſixth propoſitions, it muſt be held up by others; and if it be held up by others, then it muſt lye heavy upon them.

Here you have a plain reaſon of the ſolidity of bodies, without having recourſe to the indiviſibility and mutual complication of Atoms, or to the preſſure of the ſubtil matter. For tho the leaſt particles of matter be ſolid, yet it would be a hard task to prove them eſſentially indiviſible. The ſubtil matter of *Deſcartes* penetrating all bodies, and being in a perpetual motion, will rather ſerve to facilitate their diviſion, than to cauſe their ſolidity. And tho' the preſſure of the air may be a partial cauſe of this quality, as well as of heavineſs; yet it appears that it is neither the total, nor even the primary cauſe of it. For if you put a piece of gold, or any other ſolid body, in Mr. *Boyle*'s Engine, and then pump out the air, that body will not become the more fluid, nor the lighter for it.

But ſuppoſing the firſt conſtituent particles of matter to be eſſentially heavy and unactive, as well as impenetrable, and conſequently to lie heavy one upon another in compound bodies, proportionably to their bulk, the number of their pores, and the quantity of matter that is in them; it follows that they muſt be ſolid and reſiſt their diviſion, according to the degrees of their heavineſs, or as they more or leſs compreſs one another by their own weight. Thus the particles of Gold and Marble being ſuppoſed heavy, having leſs pores or vacuities interſpers'd amongſt 'em, and touching one another in moſt of the parts of their ſuperficies; Gold and Marble muſt needs be heavier and more ſolid than Lead and common Stones: As to hardneſs, in as much as it differs from ſolidity, it has its particular cauſe, *viz.* the rectitude of the hard body. Thus Copper and Steel are harder, but not ſo ſolid and full of matter, as Gold and Silver are.

8. *In a Circle or Sphere, the Center is reckon'd the loweſt place, and all the ſtraight Lines drawn from the Circumference to the Center are equal, and the ſhorteſt that can be drawn.* Thence it comes that a body moving perpendicularly, when deſtitute of its prop, is ſaid to have a tendency to the center; becauſe on what place ſoever of the globous ſuperficies it may fall, a ſtraight line may thence be drawn to the center, equal to any other line drawn from any other part of the ſame circumference to the ſaid center. However this is not exactly true, if we believe what has been demonſtrated of late by two famous Mathematicians, Mr. *Newton* (*a*) and *Huygens* (*b*), that the Earth is higher at the Equator, than at the Poles: for how little ſoever

(*a*) *Princ. Math.* P. 3. prop. 20.
(*b*) *Tr. de la peſ.* p. 154. & *ſeq.*

ever a globe differs from the ſpherical *figure*, the lines drawn from the center to the circumference are no longer equal.

But here ariſe two greater difficulties. 1. The Sun being moſt probably accounted the center of the world, and natural gravity carrying bodies to the center, a body caſt up in the air ought to fall into the Sun, and not to return upon the Earth. 2. Natural gravity being an uniform cauſe muſt produce an uniform motion; ſo that no reaſon can be given by that principle of the different degrees of motion in projected bodies: which when they begin to fall down increaſes in a Geometrical Proportion, as the odd numbers 1, 3, 5, 7, 9. So that if you let fall a ſtone at the height of 25 fathoms, and it runs through that ſpace in 5 ſeconds of time, it will paſs through the 1 fathom in the 1 ſecond, through the 4 in the 2 ſecond, through the 9 in the 3, through the 16 in the 4, and through all the 25 in the 5, according to the calculation of *Galilei*.

1	
3	4
5	9
7	16
9	25

To anſwer theſe objections, I obſerve 1. That all ſolid bodies emit effluviums, in proportion to their bulk, and the conſtitution and agitation of their parts. This appears in Animals, Flowers, Plants, the Loadſtone, Amber, *&c.* 2. Of theſe effluviums ſome are ſharp pointed, others blunt, ſome hooked, branch'd, channel'd; ſome clammy and rough, others poliſhed, *&c.* 3. Theſe effluviums do not all fly away, but circulate round about the bodies, whence they are emitted; otherwiſe the virtue of inanimate bodies whoſe decays are not repair'd by nutrition would be quickly ſpent. This being ſuppos'd, I anſwer, That the Earth does continually ſend forth exhalations, to the height, at leaſt, of the Atmoſphere, and perhaps far higher, ſince the Moon, that is commonly reckon'd 49 Semidiameters of the earth diſtant from our Globe, is obſerv'd to turn round about it: Of which no good account can be given, unleſs by ſuppoſing that the emanations of the earth do reach ſo far, as ſhall be proved elſewhere. At preſent I deſire only, That it be granted that the exhalations of the terraqueous globe riſe as far as the utmoſt bounds of the Atmoſphere, that is 3 or 4 miles, which the Phænomena of the clouds, rain, ſnow and other meteors make evident.

Theſe exhalations are as ſo many rods and chains of ſmall bodies of different make and figure, one of which is faſten'd to the ground, and the other reaches to a certain height in the Atmoſphere. Beſides theſe, there are the corpuſcles of the air, which have an elaſtic Vertue, and bend to and fro like Springs. When a body is caſt up in the air, the force of the percuſſion or projection, compels theſe fluid and ſpringing rods to yield, tho not without a reſiſtance that quickly ſpends and conſumes the projecting force. As

ſoon

ſoon as this is ceaſed, the body becomes indifferent to any motion beſides the perpendicular, that is annex'd to its natural gravity, but is too weak and uniform to overcome the reſiſtance which the bodies interpos'd between it and the Sun, make to this its direction: ſo that the little rods of exhalations and air, that reach from the Earth to a certain height in the Atmoſphere, and thence again to the ground, almoſt in the manner of water-ſpouts, tho they have not a ſufficient force to carry the projected body along with them, yet are ſtrong enough to determine its perpendicular motion towards the earth: And receiving in its deſcent continual ſtroaks of the ſpringing corpuſcles of the air, its motion is increas'd with that Geometrical Proportion that we have noted before.

Perhaps you will ſay, That there is an attractive force in the center of the Earth, and in each Planet, to draw on the bodies round about them, at a certain diſtance, according to the degrees of their compactneſs or denſity; as there is the like vertue in the Sun to attract thePlanets. This ſeems at firſt a very ſhort cut, but the miſchief is, that the words *attractive power*, or *vis centripeta*, give no diſtinct Idea; and that after having taken much trouble to prove, that the Sun and Planets are as many Loadſtones, which attract one another, we are as far as ever from the true notion of gravity, till we can determine by what means that attraction is made.

And therefore to proceed, Since bodies are eſſentially heavy, and cannot reſt unleſs they lie upon each other; it is methinks a plain conſequence, that they gravitate every where, and even more in their elements or proper places than any where elſe; their reſt being there more undiſturbed. *Deſcartes* (*a*) denies this upon very weak grounds. He pretends that there is no motion but what is circular, that a body cannot be carried down by its own gravity, unleſs it drives up another of an equal bulk, but leſs ponderous; whence he infers, that the ſuperior particles of water, that lie perpendicularly on the middle part of the bottom of a Veſſel, do not gravitate upon the inferior, becauſe they cannot do it, without driving up the collateral ones, which are equally heavy with them. A very ſtrange Hypotheſis, that ſeems at firſt to import, that a veſſel full of 100 pound of water would be no heavier, than if its bottom was but juſt covered. But our Philoſopher corrects this his notion, by adding that the particles of the liquor that are perpendicular to each other, joyn their force with the undermoſt of all, to preſs that part of the bottom, whereupon it lies; which deſtroys his former prejudice, and is juſt as much as we deſire.

(*a*) *Prin. p.* iv. *n.* 26.

That

That the air gravitates upon the bodies that ſwim in it has been made evident in this laſt age by a vaſt number of experiments. Nay the modern Philoſophers are come ſo far as to determine the degrees of that gravitation. For inſtance, they can tell you, That a Column of the whole Atmoſphere equiponderates an equal column of water 32 foot long, and 28 inches of *Mercury*, more or leſs, according to the thickneſs of the air, and the ſituation of the place.

True it is, that whether we walk, ſit, or lye, we do not feel the weight of the air. But there are good reaſons for it. 1. Air is a fluid that circulates about us, in which we move, and to whoſe preſſure we are uſed, ſince the firſt moment we were born. We do not feel the weight of our cloaths when we are dreſſed, nor of our coverlids when we lie in bed, eſpecially in winter time. Muſt we thence infer, That theſe cloaths and coverlids are not ponderous, or that they weigh more in Summer than in Winter? We ſhould be apt to think ſo, ſhould we follow the directions of our ſenſes; but if we conſider, that they were given us chiefly for the preſervation of our bodies, and the underſtanding for the diſcovery of truth: and that therefore the ſenſes in this inquiry ought to be made uſe of with great caution, and with the neceſſary corrections of the underſtanding: then we ſhall conclude with more reaſon, that the weight of the air, cloaths and the like, is but a gentle preſſure, which tending to the preſervation of our bodies, is not troubleſom to our ſenſes.

Secondly, The moſt ſenſible effect of the natural heavineſs of bodies conſiſts in their tendency to a perpendicular motion, as appears by the 5, 6 and 7 propoſitions. Whence it follows, That the weight of a fluid cannot be felt by animals that move in it, or about which it circulates, becauſe they do not oppoſe its perpendicular motion. I would intreat thoſe who believe that the air does not gravitate upon them, to try whether they can riſe when they ſit, without bending their head forwards, and their legs backwards: or whether they can leap up perpendicularly, and keep their bodies in a right line. They will own it impoſſible, but aſcribe this weakneſs of theirs, to the conſtitution of their Organs; rather than to the gravitation of the air, or the natural tendency of their bodies downwards. However in Mechanics we are forced to make uſe of divers inſtruments to lift up inanimate bodies, and to overcome the preſſure of the Atmoſphere, and the reſiſtance of their natural heavineſs. What other cauſes can hinder the perpendicular riſing of animals?

You have obſerved, That Eagles and other great Birds, which riſe a conſiderable height in the air, ſwim lighter and eaſier in the upper air, than near the ground. At firſt, I was inclin'd as well as

you

you to aſcribe this to the magnetical effluviums of the Earth, which ſtick at their wings as a kind of glew. But now I rather think that the quantity of the air which underprops them from beneath is not proportional to the natural heavineſs of their bodies: nor to the vaſt columns of air that preſs upon them from above: which is the cauſe of that ſtrong and perpetual motion of their wings. whereby they endeavour to make the counterpoiſe. And I am confirmed in my opinion, by that ſmall Birds fly eaſier near the ground than great ones, becauſe the former do not lack ſo much air to bear them up as the latter; whereas did this difficulty ariſe from any attractive ſtreams, it would be the ſame in both

Water being a fluid as well as air, the reaſons we have giv'n for our not feeling the weight of the air, will ſerve to explain the Phænomenon of Divers, who are not ſenſible of the huge columns of Water that lie upon their heads, as long as it freely circulates about their bodies. For as this Element is more compact than the air, its preſſure is far ſtronger: and therefore when it meets with ſome reſiſtance, as when a Diver has any leather Garment about him; it preſſes ſo hard againſt it, that the man is in danger to be cruſh'd to pieces. This power of gravitation appears farther in the bottom of the Sea, and of the Chanel of great Rivers, which it makes very ſmooth and level: and the vaſt hollowneſſes it digs in the main Ocean: As likewiſe in dead bodies which it caſts up to the ſurface of the Water. Nay Divers themſelves are forced to wear lead ſhoes of 20 pound weight, and to hang lead plates of 30 or 40 pound upon their Shoulders, that they may ſtand firm on the bottom of the Water; for otherwiſe its natural gravitation joyn'd to the force of the ſtream or current, would catch hold of the firſt motion they ſhould make, and repel them to the ſurface. But enough of this, for having had ſome curious informations concerning Divers and their Engins, I deſign to reſerve them for a particular Letter.

April 18th

LET.

LETTER XVI.

To the Honoured Mr. J. Theodore Heinſon, *Fellow of the* Royal Society.

ARGUMENT.

Occaſion and Subject of this Letter, concerning the Omnipreſence of *Chriſt's* humane Nature. *The Author's Deſign in publiſhing this Hypotheſis. The Power and prodigious Dilatation of Effluviums evidenc'd in Light and Odors. That God can make an human body, of an ordinary Bigneſs and Stature, that ſhall be able to fill the whole Univerſe with Emanations. That* Chriſt's *Body is the moſt excellent of all. That the Perfection of his Nature, his Union with the Deity, the Government of the World, and eſpecially the Sanctification of the Elect, neceſſarily requires theſe prodigious Emanations, prov'd by Reaſon and Scripture. How theſe Effluviums may be exhal'd without waſting his Subſtance, or endangering the Texture of his ſacred Body. The Doctrine of Conſubſtantiation rightly underſtood, is not abſurd, as 'tis thought by many.*

Honoured Sir,

SInce the day of your departure, when you promis'd me ſo obligingly, that your abſence ſhould not diminiſh the Friendſhip you had ſhew'd me here: I have often wiſh'd that I could meet with a Subject fit to entertain you. But the ſenſe of my ſmall abilities made me almoſt deſpair ever to find out ſuch curious and important obſervations, or to handle them ſo well, as that they

might be preſented to ſo nice and judicious an inquirer in Philoſophical matters, as you are. And therefore I would not let ſlip the occaſion of offering you the following paper, which I have receiv'd from a very ingenious hand. It refers to an Article in which your Church is highly concerned, *viz.* the *Omnipreſence of* Chriſt's *humane Nature*, of which it endeavors to give a Philoſophical and reaſonable account. All that I can ſay of the Author is, that he is a very pious man, and a Member of the Church of *England*. And who knows but there are others of his opinion; which I could heartily wiſh, as likewiſe that this explication were reliſh'd by your Divines. For the miſunderſtood Doctrine of our Savior's Omnipreſence, which is the foundation of his real preſence in the Sacrament, has been hitherto the ſtumbling-block of the Proteſtants, and the chief, or rather the only wall of ſeparation between our Churches. How happy would I reckon myſelf, if, by the publiſhing of this Hypotheſis, I might contribute ſomething to a happy reunion. But, I fear, I flatter myſelf with a fruitleſs hope, and our ſins are yet too powerful, not to turn aſide the celeſtial influences of peace and moderation, which good Chriſtians labor to inſpire in our breaſts. However, let us hear our Author.

There is one Eternal God, infinite in Power, Wiſdom and Goodneſs; diſtinguiſh'd into Three Perſons: Father, Son, and Holy Ghoſt.

The Son of God is infinitely beloved by his Father.

Infinite Love and Goodneſs, aſſiſted and directed by infinite Power and Wiſdom, cannot fail to provide for its beſt beloved, the beſt and moſt excellent things in every kind, that the beloved is capable of; eſpecially in ſuch things, as he muſt have a very near relation to, and conſtant and continual uſe for.

Wherefore if it be ſo determin'd, that the Son of God (whom we alſo call the eternal λόγος) muſt have a body inſeparably united to him, it muſt be, of all bodies that can be produc'd, the moſt excellent.

The more active any body is, the more excellent it is; provided that activity be not deſtructive, but beneficial to, and perfective of its own and other bodies. Every degree of activity, thus qualified, adds a new degree of excellency.

The immediate cauſe of the activity of any body, are the Spirits that are in the ſaid body: when theſe are in a great meaſure exhauſted or exhaled, the body becomes dull and languid; when they are again recruited, it becomes lively and active.

By

By these Spirits flowing out of the body (therefore called *Effluvia*, or Emanations) it operates on other bodies locally distant from it. Thus the Sun by his Raies enlightens and warms the air, water, and earth, with all things therein. The Loadstone attracts Iron: Jet, Amber, Glass, and many other bodies attract Straws, Chaff, *&c.* Odoriferous bodies affect our Organs of smelling: So do the *Effluviums* of a Man, Hare, Fox, *&c.* affect the Nostrils of a Dog, or other quick-scented Animal, many paces distant from the bodies out of which they flow. An evil Eye is said to hurt, and the Basilisk to kill with his aspect. And the Sympathetic Powder, and Weapon-salve, are believed to communicate their sanative Virtue to the Wound, at an indefinite distance.

Emanations flowing from the body of an Animal, contain in themselves, and impress upon other bodies the characters of those individuals from which they flow: so that by their adhering to other bodies (removed out of sight, and to a great distance from their source) the said individuals may certainly be distinguisht from all other bodies, not only of a different, but of the same species. This is manifest in Hounds, neglecting all other scents, and constantly running on that of the first started Hare, Fox, *&c.* And well train'd Spaniels, readily finding out a Glove, Handkerchief, Stick, Stone, *&c.* toucht by their Masters hands, and hid in a heap of other bodies handled by other men; tho they never saw it before.

The more plentiful, pure, subtile, vigorous and efficacious the emanations are, the greater is the activity of the body, out of which they flow; and the more powerfully will it operate on other bodies rightly dispos'd for the reception of the said emanations.

Emanations flowing into a body rightly disposed for their reception will produce in that body such qualities, as were in the body out of which they proceeded: and by this means thousands of bodies may be altered by one. Thus thousands of Needles may acquire a verticity and an attractive virtue from one Loadstone; and a whole City may be infected by one man; tho not one of all that multitude did once touch him: And 'tis not impossible that health in like manner may be communicated, by balsamic spirits flowing from the thoroughly purified body of a person eminently virtuous; especially if these emanations be directed in their course, and invigorated by the earnest and fixt intention of the soul of the emittent; and eagerly imbibed by the exalted imagination of the suscipients. Nay the thing is not only possible, but really happen'd: For one Mr. *Greatrix*, an *Irish* man, living near the Earl of *Orrery*'s, who has not been dead these many years, and has been known by several persons yet

living in the 3 Kingdoms, had the gift of curing the King's-evil, and ſeveral other diſeaſes, as Dimneſs, Deafneſs, the Ague, the Falling-Sickneſs, *&c.* by repeated ſtroaks of his hand. You may find a full account of him, in the *Sadduciſmus Triumphatus* of Mr. *Glanville*, p. 84, 85. P. 1. Edit. 2.

Emanations plentifully and vigorouſly flowing from an eminently active body, into a body eminently paſſive; but exceeding fitly diſpoſed for their reception and retention, may become a ſubſtantial ſeed, whereby not only ſome qualities, but the perfect idea, and the lively ſubſtantial image of the body from which they flow, with all its properties and virtues, may in the ſaid paſſive body be produced. Thus we know, That the beams of the Sun refracted thro a Burning glaſs, and received into combuſtible matter, will immediately produce therein an *Infant Sun* (if I may ſo ſpeak) which lives and burns, and ſhines like his Father, tho in a far lower degree, and will continue ſo to do, as long as it has nouriſhment, and is not extinguiſht by any outward accident.

And may not even living Creatures be generated by theſe inviſible and impalpable emanations? Surely if our modern Anatomiſts, who have far ſurpaſt all that ever went before them in their diſcoveries, may be credited; we muſt allow theſe emanations to be the only immediate active principles, in the generation of all Animals. For they aſſure us, That there is no viſible or palpable ſubſtance to be found, either in the prolific Eggs of Birds, or in the Wombs of viviparous Females immediately after copulation, that may diſtinguiſh them from thoſe that are unprolific or ſterile. And tho in the ordinary way of generation, this contagion, as Dr. *Harvey* calls it, be communicated by means of carnal copulation; 'tis not impoſſible that the ſame effect may be produced, that the emanations may prove as vigorous and efficacious for the generation of an animal, when there has been no ſuch copulation, or any immediate contact. Yea Hiſtorians of good repute have long ſince aſſured us, That ſome female animals have been impregnate by the wind, probably bringing to them the *Effluviums* of males of the ſame kind from remote places. But 'tis enough for my purpoſe, if the poſſibility of this way of generation be granted (which I ſuppoſe none will deny) tho no animal ever were, or ſhall be ſo generated.

Lucid bodies are, of all bodies that we know, the moſt active; they ſend forth emanations in the greateſt plenty: and the emanations flowing from them, are, of all others, the moſt pure, ſubtile, and vigorous. The flame of a Candle of an inch diameter, may be ſeen, in a dark night, I ſpeak within compaſs, above 1000 paces diſtant, it will therefore enlighten a ſphere of above 2000 paces diame-

diameter, ſo that the eye cannot be placed in any part of the ſaid ſphere, but rays from the Candle will ſtream into it. And this act of illumination is performed in the twinkling of an eye, before there can be any ſenſible diminution of the ſubſtance of the Candle. Therefore a body without any ſenſible diminution of its ſubſtance, may fill with its emanations a ſpace large enough to contain 1000 Millions of Millions of bodies, of equal bulk with it ſelf.

That theſe Rays are real Emanations from the Candle, and in very deed the ſame ſubſtance that immediately before was ſeen ſhining about the wiek, but now diſentangled from thoſe fuliginous ſteams wherewith it was there mixed, is to me apparent, in that they may be recollected by refraction thro a tranſparent Convex, or Reflection from a terminated Concave glaſs, or from poliſhed Metal. And if the reflecting *Speculum* be large, exactly ground and poliſht; and the diſtance from the Candle not too great, the recollected flame (tho as inviſible as the ambient air, whilſt it has no other body to reſide in, yet) receiv'd into combuſtible matter, will manifeſt it ſelf to be real fire, by burning and ſhining, like its origine. And tis worth our obſervation, that tho the ſhape of the reflecting or refracting glaſs be ſphærical, parabolical, or hyperbolical; yet the reproduced flame will be pyramidal, as 'twas before 'twas ſeparated from the Candle. Emanations, if not very much diſtorted by outward accidents, will retain even the viſible Characters of the individual body from which they flow; tho they be hid in the air where they become inviſible; tho they be invironed with millions of minute bodies; tho they be croſs'd in every point of their line by other Emanations: tho they be reflected and refracted by glaſſes and thro mediums of different ſhapes and kinds: yet if after all they be manifeſted to the ſight, they will repreſent no ſhape but that of their original.

I might eaſily enlarge my ſelf upon this ſubject of illumination, and make it ſeem yet more probable, if not evidently demonſtrate, that fire and light, the luminous body, as luminous, and the Ray are the very ſame ſubſtance. But tis no part of my preſent deſign: beſides, I perceive by the reading of your Memoirs, that you are going to write of it. This only I ſhall add that ſuch as will not allow the ſubſtance of the Candle (in union with the active principle) to be that which enlightens the air, are obliged to ſhew where that ſubſtance is, or what is become of it after 'tis parted from the wiek: which I am ſure they can't do.

But becauſe the corporeity of light, and its almoſt inſtantaneous flight to as great a diſtance as its Rays will extend, is queſtion'd by ſome great pretenders to Philoſophy: and other

accounts

accounts have been given of the manner of Illumination: I ſhall chuſe ſuch an inſtance among the objects of another ſenſe, as all own to be a body, whoſe Emanations indeed are by very many degrees inferior to thoſe of light, both in ſubtilty and vigor; yet plentiful enough to fill a ſpace many millions of times larger than what is occupied by the body from which they flow. We need go no further than our Candle for ſuch an inſtance; but becauſe, not believing our eyes, we receive no benefit (as to this matter) from its light, we'll blow it out. Then the Room (ſuppoſe it to be 20 foot ſquare, and 10 high) will ſoon be filled with another kind of Emanation (not ſo pleaſant to our noſtrils, as the former was to our eyes) which we know was ſome particles of half, or not near half, reſolved tallow that remain'd in the wiek after the extinction of the flame. Let us ſuppoſe them to have been the ſolution of about a thouſandth part of a cubick inch of tallow (and more I think they could not be, if ſo much) they now occupy a ſpace that will contain above 500 millions of ſuch bodies. We may eaſily conceive their diffuſion would have been vaſtly greater and ſpeedier, if inſtead of the dull fire that remains in the wiek after the extinction of the flame, they had been wrought upon by this moſt active principle, ſo as to have their nature quite changed, from a ſteam very offenſive to the Noſe, into a light moſt welcome to the Eye. Would not the ſpace which in this ſtate, they would have filled, bear the ſame proportion to that which they now take up, that the light of a thoroughly kindled Candle does to the ſpark that remains in the wiek after its extinction?

But when I ſay that luminous, or odoriferous, Emanations do fill ſo vaſt a ſpace, I do not mean adequately; but ſo as that there is no ſenſible part of the ſpace, in which they are not preſent, tho in the mean time millions of other bodies, and emanations from other bodies are contain'd within the ſame compaſs: and the luminous or odoriferous emanations, do realy and adequately fill no more ſpace in their utmoſt rarefaction and diffuſion, than they did before their ſeparation from the luminous or odoriferous body.

A body that emits Emanations in very great plenty, and with greateſt vigor may be ſupplied as faſt as it waſtes: and ſo notwithſtanding its unintermitted expence of Effluviums for ever (or as long as God pleaſes) continue in the ſame ſtate. Or the ſupply may be greater than the waſte, as in growing Animals and Vegetables, and then 'twill continually increaſe in bulk or vigor.

Of all Bodies known to us, the Sun is viſibly the moſt glorious; the Emanations flowing from him are ſo plenteous, that there is no

ſenſible

ſenſible part of the Air or *Æther*, within this ſolary *Vortex*, that is not full of them. So pure and ſubtile are they, that they paſs thro' all diaphanous, tho' otherwiſe hard, Bodies in the form of Light, and thro' Opake Bodies in the form of Heat. So vigorous and efficacious are they, that the whole Air and *Æther*, for many millions of Miles round, is, as 'twere, in a moment enlightned, and all Minerals, Vegetables and Animals, in this and the reſt of the Planets, are warm'd, enlivened, produced or cheriſht by them: And yet no ſenſible diminution either of bulk or vigor, has been diſcover'd in it ſince its Creation, but what was accidental, and has been again repair'd.

Becauſe God is infinite in Power and Wiſdom, he can produce a humane Body, not exceeding the common ſtature and bulk, which in the plenty, purity, ſubtilty, vigor and efficacy of its Emanations, and in the firmneſs and durability of its texture and vigor ſhall as far exceed the Sun, as he does an ordinary humane Body, or the vileſt Animal, Vegetable, or Mineral. Let us now ſuppoſe, with *Des Cartes*, that thoſe innumerable Stars which diſcover themſelves to our Eyes in a froſty Night, and as many more as you pleaſe, ſo the number be not infinite, which is impoſſible, are each of them a Sun fixt in the Centre of a *Vortex*, as large as he fanſies this of ours to be. It does not exceed the Power of the Almighty to produce a humane Body, (not exceeding the common ſtature) which placed in the Centre, or upon the Circumference, within or without this prodigiouſly vaſt Univerſe, ſhall fill the whole with Emanations flowing from itſelf: And by the ſaid Emanations, ſhall operate more vigorouſly in every part thereof, than the Sun does in any part of this *Vortex*.

And becauſe we ſuppoſe the Body of the bleſſed Jeſus to be the moſt excellent, and conſequently the moſt active of all Bodies that are or can be produced; and becauſe the Emanations flowing from it have, *de facto*, been manifeſted to be more vigorous than the beams of the Sun, (*Acts* 26. 13.) 'tis not, I think, unreaſonable to conceive, that the ſaid Emanations are every where inviſibly, and, if he pleaſe, may be viſibly preſent, in every ſenſible or determinable part of the Univerſe: if ſo ſtupendous an activity can conſiſt with, and may any way contribute to the happineſs of him, who is deſervedly the Head of the whole Creation.

That ſo ſtupendous an activity may conſiſt with, and be very ſubſervient to his happineſs. I ſhall now endeavor to prove.

Two things muſt concur to make a Man happy; the perfection of

of his nature, and the ſatisfaction of his deſires: and theſe two are attain'd only by an Union with God, and aſſimilation to him.

That Chriſt's Union with God is the neareſt that can be, no true Chriſtian doubts; ſeeing both natures are ſo united in him, that they conſtitute but one Perſon.

Neither can we reaſonably doubt that Chriſt as Man, or the humane nature in Chriſt, is more like unto God, and does more abundantly partake of his infinite Power, Wiſdom, Goodneſs, and the reſt of his glorious Attributes, than any other Creature does or can.

The Activity we are pleading for, is ſo far from being inconſiſtent with this ſupreme Happineſs, that to me it ſeems difficult, if not impoſſible to conceive how he can be ſo happy, *i.e.* how the humane nature in Chriſt can be ſo nearly united and aſſimilated to the Divine, without it.

If the whole humane nature of Chriſt be wholly comprehended within the narrow limits of a viſible, palpable humane Body; he is Θεάνθρωπος, or God-man only in one particular place of the Univerſe of very ſmall extent, every where elſe he is only God; and then the Deity lying bare, if I may ſay ſo, what hinders but another Man, yea, ten thouſand millions of Men may be perſonally united to the Divine λόγος, and ſo many Men may be but one Perſon, than which nothing can be more abſurd?

How the humane nature of Chriſt can be preſent in every part of the Univerſe, by any other way than by the foreſaid Emanations, I do not underſtand; but by the help of this Hypotheſis, we may eaſily conceive how the humane nature of Chriſt perſonally united to the Divine, does not only partake of God's Immenſity, by being every-where preſent; but alſo of his Omniſcience, by knowing all things; of his infinite Goodneſs, by communicating himſelf to all Creatures, according to their ſeveral Natures and Capacities; and of his Omnipotence, by doing whatever he pleaſes in Heaven, in Earth, and throughout the whole Univerſe.

For I conſider, that becauſe God is Almighty, he could create a Soul (*i.e.* a Spirit capable of being vitally united to a humane Body) of ſo unlimited a Capacity, that, beſides its office of informing that particular Body, it ſhall be able to manage all the Affairs of the Univerſe, and order every particular action and motion of a Creature, and particle of a Creature therein contain'd, with much more eaſe and certainty, than theſe Souls of ours do adminiſter the Affairs of our Bodies.

'Twould

'Twould not exceed the Power of a Spirit ſo endowed, to direct, regulate, and moderate the foreſaid Emanations diffuſed throughout the whole Univerſe.

And becauſe the Almighty Father does infinitely love his coeternal Son, 'tis reaſonable to ſuppoſe the Soul of Chriſt (intimately united to the Divine λόγ☉) to be the moſt excellent of all Beings that are or can be created.

'Tis therefore as reaſonable to ſuppoſe, that the foreſaid Emanations flowing from his moſt glorious Body, be they never ſo plenteous, pure, ſubtile and vigorous, are more perfectly ſubject to the dominion of his Soul, than any Member of our Body is to ours. How we may conceive it to work on other Bodies by means of theſe Emanations, we are now to enquire.

It has been the Opinion of ſome Philoſophers, That Sight is cauſed by the Emiſſion of Spirits from the Eye to the Object, tho' this be not the common received Opinion; nor is Sight cauſed this way, except perhaps in ſome particular Animals, as thoſe that ſee in the Night: yet, I ſuppoſe, none will deny that 'tis poſſible for a Man to have his Organs or Inſtruments of Perception ſo diſpoſed, that he may ſee, feel, and other ways perceive Objects by Emanations flowing, not from them, but from himſelf.

This kind of Perception, being active, and not needing exterior helps, as Light, a due conſiſtence of the *medium*, a moderate diſtance and poſition of the Object, *&c.* is much more excellent than ours, which is meerly Paſſive, and needs thoſe Requiſites.

If the Emanations flowing from the Body of an Animal endowed with this kind of Perception, be ſo ſubtile as to paſs freely thro' all manner of Bodies, diaphanous or opake, fluid or firm; there can be no particle, quality, motion or alteration in the Body they ſo paſs thro', or are in, that ſhall lie hid from the Soul that operates by them.

If therefore the Emanations flowing from the glorified Body of the bleſſed Jeſus, be ſo plenteous as to fill the whole Univerſe, as the beams of the Sun do the Air and *Æther*; if they be ſo ſubtile as to penetrate into the inmoſt receſſes of all Bodies; and if they be ſo perfectly under the command of his Soul, that he can uſe them as his Inſtruments of Perception, according to his pleaſure: then we may eaſily conceive, there can be nothing in the world hid from him, not only as he is the Omnipreſent, Omniſcient λόγ☉, but alſo as he is Man.

We may alſo as eaſily conceive, how by theſe Emanations, acted and regulated by his Soul, invigorated by the all-powerful λόγ☉,

he can communicate his Favor, Virtue, Holineſs, Purity, yea, his very Subſtance to every Creature throughout the Univerſe; to ſome in a greater degree and meaſure; to others in a leſs, even as he pleaſes: which 'tis hard to conceive the naked Deity can do, becauſe of the infinite ſimplicity and immutability of his Eſſence, which can't be more in one place, thing or perſon, than in another. Thus for inſtance, was the great Perſecutor (afterward the great Preacher) converted, by a glorious Beam of Light, and an audible Voice, proceeding from the Body, and out of the Mouth of the glorified JESUS: which yet would have proved as ineffectual in him, as in thoſe that accompanied him; but that by the operation of the Soul of Chriſt working in and with thoſe Emanations, the fire of Divine Love was kindled in the now unreſiſting heart of that happy Convert.

By the ſame means, tho' not after the ſame manner, we may conceive that bleſſed work of Regeneration and Sanctification to be performed in all that do not finally reſiſt the Holy Ghoſt, working in and by theſe inviſible Rays. Theſe Emanations flowing from the Fountain of all Purity, contain in themſelves, and impreſs upon all rightly diſpoſed hearts, the Divine Character and vivid *Idea* of that life-giving and all-purifying Body: they become a ſubſtantial Seed, the Seed of GOD, out of which an *Infant Chriſt* is generated; which being conſtantly nouriſht, by the inceſſant inflowing of new Emanations, ſpreads itſelf thro' all the parts and members of the Body, making it to increaſe with the increaſe of God, and changing it into the ſame Image from Glory to Glory.

This plentiful communication of his goodneſs to all Creatures, eſpecially this Generation of his own Image, out of his own ſubſtance, in all rightly diſpoſed hearts, in whatever part of the Univerſe they be: this univerſal Benefit, I ſay, and the unſpeakably happy effects of it, muſt needs bring ineffable joy and delight to the Soul of the bleſſed Jeſus; a delight as far tranſcending any that we are capable of in this World, as the whole Univerſe does the narrow limits of our Beneficence.

If this communication of his Goodneſs, if all theſe glorious Effects, far more and greater than can be numbred or conceived by us, be brought to paſs by the foreſaid Emanations, their plentiful and continual diffuſion throughout the Univerſe is not at all inconſiſtent with, but ſo ſubſervient to, and conſtitutive of his ſupreme happineſs, as nothing can be more; and without that diffuſion, for ought I can conceive or underſtand, his happineſs would be very imperfect.

And

And whereas we ſaid above, That God can produce a humane Body, that ſhall fill the whole Univerſe with Emanations flowing from itſelf; and have concluded the Body of the bleſſed JESUS to be the moſt excellent, and conſequently the moſt active of all Bodies that can be produced: theſe Premiſſes ſeem to import, that the Emanations flowing from his Body, ſhould adequatetly fill the Univerſe. But from the conſideration of his goodneſs, we may conceive a Reaſon why the Univerſe is not thus adequately fill'd by them, *viz.* becauſe then thoſe Emanations would exclude all other Bodies out of Being; and ſo he ſhould want Subjects whereon to exerciſe his Beneficence. 'Tis his good pleaſure to abate of his greatneſs, and of the power, activity and excellency of his Body, which in this caſe would be no excellency, that by the plentiful exerciſe of his goodneſs, he may manifeſt the excellency of his Soul.

A like Reaſon may be rendred, why the Univerſe, particularly this Earth whereon we live, is influenced by him to no greater a degree than 'tis at preſent: why 'tis not at all times wholly enlightned by him with as glorious a Light as once ſhone upon that ſpot, where *Saul* and his Companions were ſurprized in their Journey to *Damaſcus*; or, as we believe the Heaven of the bleſſed to be for ever enlightned withall: *viz.* becauſe ſo glorious a Light, ſo powerful an Influence would over-power the Faculties of the Creatures, and very much hinder the natural operations of inferior Agents, and the free agency of Men; which the Divine Wiſdom ſees meet to continue in their preſent ſtate, till the time of the reſtitution of all things.

The happineſs I have hitherto ſpoken of is proper to the Soul; there is alſo a happineſs of the Body, to which ſo prodigious an Activity as we have ſuppoſed, ſeems ſo directly contrary, that the very Being, Fraine and Texture of the Body is thereby hazarded every moment. An Activity many thouſand degrees ſhort of this, would, one would think, in the twinkling of an Eye, ſhatter in pieces, and diſſipate into Atoms, a Body as hard as Adamant, and as big as the whole Globe of the Earth.

But here there is no fear; for if God have endowed that Body with ſo great an Activity, and to ſuch excellent purpoſes, becauſe he is Almighty, we do not doubt but he can, and becauſe he is infinite in Wiſdom and Goodneſs, we may be ſure he will give, or rather has given it a firmneſs of Texture proportionable to its Activity.

We need not fear that by ſo ſtupendous an Emanation of Spirits, the Body out of which they flow, ſhall be left dull, unactive, or ſpiritleſs. For we have before concluded, that the Soul of the holy JESUS has the perfect command of the Spirits, both whilſt they

are within, and after they are exhaled out of the Body. And ſo, the more plenteous, pure, ſubtile and vigorous the Emanations are, the greater is the pleaſure; which he can continue as long, and reiterate and encreaſe, as oft and as much as he pleaſes: by remanding the newly expired Emanations into the Body, or by ſupplying it with freſh Spirits from the ambient Heaven.

Wherefore that ineffably vaſt diffuſion of Emanations from the glorify'd Body of the bleſſed JESUS, ſeems neceſſary for the compleating of his corporeal, as well as ſpiritual happineſs. And by the contemplation of it we may be enabled to conceive; how the Pleaſure, which he to all Eternity does or may enjoy, bears a greater diſproportion to the greateſt that we are capable of in this life, than the whole Univerſe does to a humane Body.

The ſame diffuſion of Emanations from his glorified Body into us, ſeems neceſſary alſo to the conſtitution of our happineſs: For he is our life, *Coloſſ.* 3. 4. He lives in us, *Gal.* 2. 20. He is formed in us, *Gal.* 4. 19. We are Members of his Body, ἐκ τῆς σαρκὸς αὐτοῦ, καὶ ἐκ τῶν ὀστέων αὐτοῦ, made out of his Fleſh, and out of his Bones, *Epheſ.* 5. 20. What authority any perſon in the world has to reject the literal ſenſe of theſe, and many the like expreſſions in Scripture I know not; let thoſe that do ſo look to it; let them beware they be not found guilty of wreſting thoſe ſacred, thoſe divinely inſpir'd Writings, to their own great prejudice, and the damage of Souls. Divine Inſpiration they do not pretend to, 'tis Reaſon only that dictates to them a ſenſe of Scripture contrary to, or excluſive of the literal. They know not how a Body can be preſent any other way than locally, or circumſcriptively; therefore the property of being every where muſt not be allowed to the glorious, ſpiritual Body of the ever bleſſed JESUS. They may with equal right reject the Doctrine of the Trinity, as too many now do; for that is as contrary to Reaſon, and can hardly be more plainly aſſerted in Scripture, than is the Omnipreſence of Chriſt's Humanity, or of Chriſt God-man; which I hope I have now ſhewed not to be ſo contrary to Reaſon, as moſt have imagined. Some may perhaps have a better way of explicating this Myſtery communicated to them; but, for the preſent, I do not underſtand how that Body can be Omnipreſent by any other way, than by theſe ſubſtantial Emanations; much leſs can I conceive how we can be regenerated, ſanctified, or purified, without a real ſubſtantial participation of the Principle of ſpiritual Life and Purity.

If any ſay that we are regenerated and ſanctified by the ſame means, and after the ſame manner, that all the holy men of old, who

who lived before the incarnation of Chriſt, were regenerated and ſanctified by; I ſay ſo too. Nor does this conceſſion ſubvert, or any way prejudice my Hypotheſis, if the anciently famous, and commonly received tradition of the præexiſtence of Souls, particularly of the Soul of the *Meſſiah*, and its union with, and acting in an Æthereal body, be allowed; and this we muſt allow, if we will make ſenſe of hundreds of paſſages in Holy Scripture. And we muſt grant too, that the *Iſraelites* of old (and if they, why not others) were made partakers of the ſame body. This, I ſay, we muſt grant, if we will ſtick to the literal ſenſe of Scripture, and not wreſt it by our own interpretation. For 'tis the aſſertion of the Apoſtle. 1 *Cor.* 10. 3, 4. That *they* (the *Iſraelites, who came out of* Ægypt) *did all eat of the ſame ſpiritual meat, and did all drink of the ſame ſpiritual drink: for they drank of that ſpiritual Rock that followed them; And that Rock was* CHRIST. 'Tis certain that the Manna which they ſaw, and felt, and taſted, and with which their bodies were nouriſht, was not ſpiritual meat; nor was the Rock that *Moſes* ſmote with his Rod, a ſpiritual Rock, or the water that flowed out of it, ſpiritual drink; any more than the conſecrated bread and wine in the Holy Euchariſt, are the very ſubſtance of the body and blood of Chriſt. But beſides, and in, or together, with this bodily meat and drink, they did partake of truly ſpiritual meat, and did drink truly ſpiritual drink; even the emanations of the ſpiritual Rock that followed them. The material Rock did not follow them, tho the water did; but the ſpiritual Rock did both follow, and go before, and overſhadow them, in the pillar of a cloud, in which alſo they were baptized, *v.* 2. *And that Rock was* CHRIST. *Chriſt*, I ſay, not as he is God, for ſo he is not *Chriſt*, nor can he in reſpect of his Deity, be properly ſaid to follow, or to move from place to place but as he is a Creature whoſe body was then wholly Æthereal, or ſpiritual, without any firmly organized center. He has ſtill the ſame body, tho in part, at leaſt otherwiſe modified; and perhaps very much augmented by the converſion of other bodies into his own ſubſtance.

But to remove all ſcruples concerning the poſſibility of this Omnipreſence you muſt know, That be the univerſe as large as our fancies can make it, it will not require ſo impetuous a ſtream of emanations to fill it, no not by many millions of degrees, as hitherto our Hypotheſis ſeems to make neceſſary. For, ſuppoſing the body of the bleſſed *Jeſus* placed in the center of the univerſe (or wherever 'tis his pleaſure to be) we need not fancy that the end of the ray muſt reach the utmoſt bounds of it, the very next moment after it iſſues out of the body; nor the next minute, or hour. For the univerſe once filled

with

with theſe emanations, or with theſe ſpiritual bodies,for ſo I'll make bold to call them: the Univerſe, I ſay, being once filled, does, and always will continue full of them. For they cannot be annihilated, or changed into any other ſubſtance; and they will be always kept in motion by his ſoul, which is ever, and every where preſent with, and in them, to direct, regulate and moderate them as aboveſaid, Perhaps 'tis neceſſary that they be circulated anew thro the glorified organical body, together with the emanations which we may ſuppoſe to be extracted by them, out of thoſe bodies that have been regenerated, and in ſome meaſure ſanctified by them; eſpecially ſuch emanations as by their operation have been ſtrained out of thoſe bodies in ſighs, and groans, and pantings, and breathings after Chriſt, in heavenly ejaculations, fervent prayers, and hearty praiſes. That ſo both ſorts, now intimately united, may by the ſaid circulation, acquire a new degree of purity.

Thence I conclude, *That the humane nature of the bleſſed* Jeſus *is really and ſubſtantially preſent in every part of the Univerſe, and is, in conjunction with his Deity, the Principle of ſpiritual life in all true Chriſtians,* by the way here deſcribed, or by ſome other more excellent. But if he be ſubſtantially preſent every-where, much more in the Holy Sacrament of the Euchariſt,the elements of which he has been pleaſed to call his body and blood; and which, as all Chriſtians agree, is the chief chanel of his Grace. And therefore the Doctrine o' Conſubſtantiation rightly underſtood, is ſo far from being abſurd, that it ſeems to be the moſt probable account that can be given of our Union with Chriſt in that Sacrament, aſſerted by *Calvin* and other reformed Divines. Laſt of all, if this uſe only be made of the foregoing explication, not to ridicule or deſpiſe our Brethren for an opinion, which if it be not true, is at leaſt as likely to be ſo, as any that we hold; then I have as much as I deſire.

April, 20th.

LET.

LETTER XVII.

To my very good Friend Mr. J. Gawdy.

ARGUMENT.

That the modeſt publiſhing of new Notions in Philoſophy is not to be condemned, provided they be not hurtful. Whether the Hiſtory related in the XI *Letter of theſe* Memoirs, *was a Viſion or a Dream? Three things that appear certain in this Hypotheſis. That the Creation of different Orders of Spirits, is not repugnant to the goodneſs of God.*

SIR,

YOur objections are ſo ſolid and ingenious that I ſhould think my ſelf engag'd to anſwer them, tho they came from an unknown hand, but much more now that they are offer'd to me by ſuch an obliging perſon.

You ſeem to diſlike my inſerting in theſe Memoirs an Hypotheſis, which I call a Viſion or a Dream; becauſe you thought I would advance nothing but what was demonſtrable. By your leave, Sir, I do not deſire to be ſo narrowly confin'd, for matter would quickly fail me. It ſuffices, methinks, that I plainly diſtinguiſh between what I intend to prove, and what I only give out for a probable conjecture. Thus I uſe a very different ſtile, when I impugn the pretended infinity and fulneſs of the world, and ſhew that motion is impoſſible in that hypotheſis: when I endeavour to deſtroy the Vortexes of *Des Cartes*, and to aſſert the eſſential gravity of bodies: then when I propoſe my conjectures about the cauſes of the flood, the ſhortning of mens lives, and the ſurprizing effects of the divining Wand. And why ſhould I not be allowed modeſtly to publiſh my notions, as well as other Writers, eſpecially ſuch as meddle with Metaphyſics and Natural Philoſophy; ſince tho I were miſtaken, yet they

may

may give ſuch hints to others, as may facilitate the diſcovery of the Truth. I am ſo far from being over-fond of the *Carteſian* Syſtem, that I believe it erroneous in moſt of its aſſertions; however I am confident that had not this great man traced out a new way of Philoſophizing by his ingenious and coherent gueſſings; we ſhould ſtill be infatuated with the occult qualities and ſubſtantial forms of the Peripatetics.

But to come cloſer to the purpoſe. As to the matter of fact, I may aſſure you that I have dream'd, not the very words of my XI Letter, but ſomewhat very like it. However I am not ſure, whether there was ſomething ſupernatural in it, or whether it was a viſion or dream. For I dream very ſeldom, becauſe I ſpend moſt of my ſpirits, while I am awake, in hard work and ſtrong application: ſo that the ſoul whil'ſt I am aſleep, does not find a ſufficient quantity of them to raiſe idea's and ſenſible perceptions. But when I chance to dream, my perceptions are very clear, and in a manner more ſenſible than when I am awake. Thus it may have happened, That my imagination being overheated by an earneſt deſire of unravelling that great Myſtery, the eſſential difference betwixt man and beaſt, my ſoul gathering up the remaining ſpirits, formed thoſe lively impreſſions and diſcourſes, which I have related.

The only difficulty is how we can get new notions in a dream, ſuppoſing it to be purely natural; but this difficulty will vaniſh, if we conſider, That the ſoul is in ſome reſpect a free intelligent being, and that her progreſſes in the diſcovery of the truth are ſtopp'd chiefly by the weakneſs of her body, and the diſtractions of external objects; ſo that in the ſleep, when her body is quiet, and external objects leave her undiſturbed; ſhe may more freely contemplate her Ideas, and complicate them in ſuch a manner as may unravel great myſteries; provided always there be a ſufficient quantity of vital ſpirits to render her operations ſenſible to us. Daily experience confirms this conjecture by the ſtrange notions we have in our dreams. I own they are moſt of them inſignificant: 1. Becauſe the ſoul itſelf does often miſtake. 2dly, Becauſe the vital ſpirits are ſometimes too unruly, and too much us'd to certain motions to obey the commands of the ſoul. 3dly, Becauſe we do not take care enough to keep our mind free from prejudices, and our heart from paſſions, to be in a fit ſtate of diſcovering the truth during the ſilence of the night.

As to the Hypotheſis itſelf, there are three things that appear to me unconteſtably true, and even demonſtrable by Scripture and reaſon. 1. That God created Spirits before bodies. For beſides the reaſons I have alledged in the ſaid Letter, it may be added, That the

the ſacred Author deſcribes the work of the Creation, as ſucceſſive and begun with the higheſt and moſt excellent beings, as the light, the firmament, the ſtars, *&c.* Now that Spirits, that is, thinking, penetrable and active ſubſtances, are more noble than inſenſible, impenetrable and unactive matter, is altogether undoubted. Neither is it leſs plain that the goodneſs and Wiſdom of God, moved him at firſt to create ſuch beings as ſhould bear illuſtrious characters of his perfections, and might be ſenſible of his beneficence.

2. That ſome of theſe Spirits have been diſobedient to their Cretor, is a truth clearly revealed in many paſſages of the Holy Writ. And tho I confeſs that the manner of their rebellion is not ſo plainly ſet down, nor what kind of puniſhment they have undergone for it: yet if we conſider,

3. That God is all wiſe and immutable, that his Laws are ſo too, and therefore that theſe his Laws, at leaſt ſuch as are the foundation of all Societies, are as unchangeable as himſelf: We muſt undoubtedly conclude, that that excellent ſummary of Morality, to love God with all our power, and our Neighbors as our ſelves, was the abridgment of all the Laws which God gave to the Spirits at their firſt creation: and that theſe Laws had rewards and puniſhments annex'd to them ſuitable to the nature, ſtate and condition of theſe Spirits.

All this, I hope, will not be deny'd by any Chriſtian Philoſopher: but I own that the reſt of my hypotheſis does not carry ſo great Characters of evidence. For inſtance, as to what I ſuppoſe that theſe ſpirits were created different in order and dignity, ſome being endued with higher degrees of knowledge and power than others: it may be ſaid that this notion repugns the goodneſs of God, who is the common Father of all his Creatures, who pours upon them the treaſures of his beneficence with an equal liberality, and puts no difference betwixt 'em, unleſs he be obliged to it by his juſtice.

However it may be anſwer'd, 1. That God is all-wiſe as well as all-good, and that his ſupream wiſdom appearing more ſenſibly by an unimaginable variety of Creatures, than by an uniform Creation: if this variety can conſiſt with his goodneſs, it muſt be the moſt perfect way, and conſequently that which God will chuſe. 2. This variety may be conſiſtent with his goodneſs, if the pleaſure that there is in the acquiſition of knowledge and power, as a reward of having done our duty, be a ſufficient compenſation for a longer enjoyment. Pray ask thoſe who have had the happineſs to diſcover ſome evident truth, whether they would have been born with that knowledge? or whether to find out ſomething certain and out of the common

road, does not afford a greater delight to their Soul, than any thing they are taught by others? Now the lower Spirits were by our ſuppoſition, in a capacity of increaſing their knowledge by their meditation, and their power was to be augmented in proportion to their light; ſo that they were in a ſtate of enjoying, almoſt continually, the inexpreſſible pleaſure of making diſcoveries: and therefore in reſpect of happineſs, their condition was not worſe, than that of the ſuperior Spirits, which is all that a thinking being can deſire.

The Hypotheſis of the variety of Spirits is not only very rational, but for ought we can judge by the ſtate of the preſent world it ſeems to be the true one. For not to ſpeak of inſenſible things, whoſe difference can only conſiſt in the various complication of their particles, we may obſerve life and ſenſibility growing up by degrees, from the graſs of the field to the ſenſitive plant, from an Oyſter to a Mermaid, and from a Worm to an Ape. I would alſo alledge that ſtupendous variety, that is to be found amongſt men, even of the ſame temper and education; but that I do not deſire to engage into that famous controverſy, Whether this difference proceeds from the various conformation of their Organs, or from the different nature of their Soul.

I never was more diſpleaſed at my being confin'd to a certain number of Sheets, than I am now, that my Printers tell me they have matter over and above; ſo that I am forced to break off abruptly, and to defer the farther proofs of the diſtinction of Spirits into ſeveral Orders, and the anſwer to your other objections till another time.

April, 25th.

FINIS.

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fig. 3

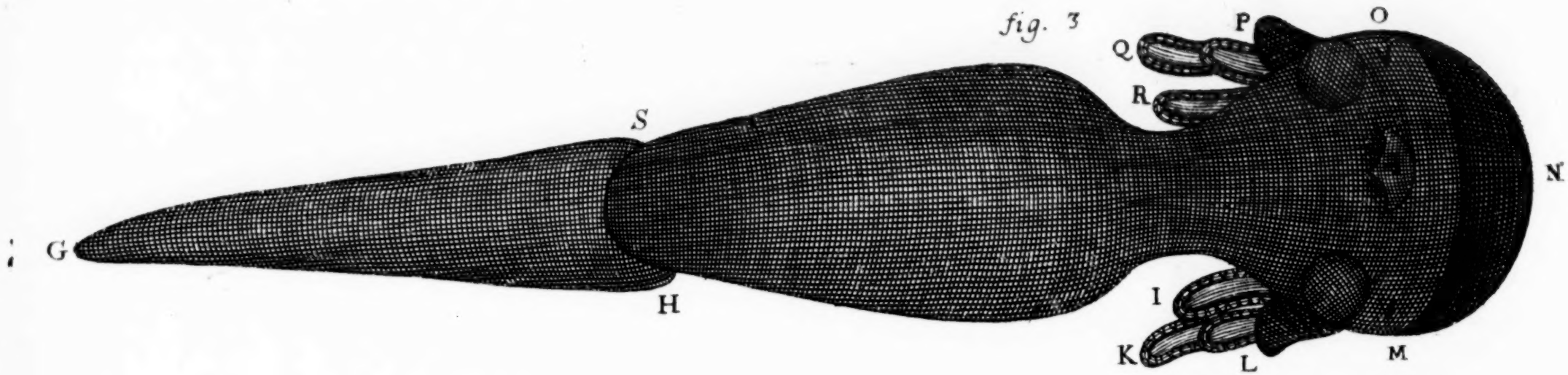

fig. 1

fig. 2

fig. 6

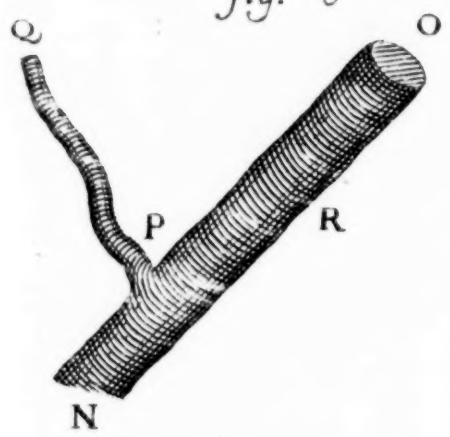

fig. 5

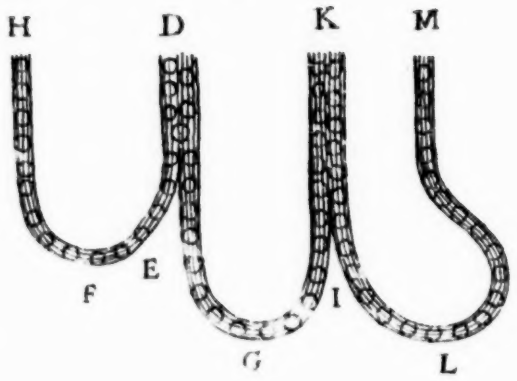
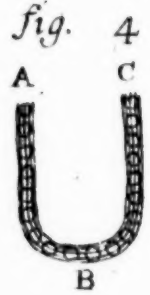
fig. 4